9/1/03-00702

Final

Decision Document
SWMU 25

NAS Oceana
Virginia Beach, Virginia

Prepared for

Department of the Navy
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia

Contract No. N62470-95-D-6007
CTO-0105

September 2003

Prepared by

CH2MHILL

Final Decision Document

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Contents

Acronyms

BTEX	benzene, toluene, ethylbenzene, and xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMS	Corrective Measures Study
CT	Central Tendency
DD	decision document
DoN	Department of the Navy
DPT	direct-push technology
ERA	Ecological Risk Assessment
HHRA	Human Health Risk Assessment
HI	Hazard Index
IAS	Initial Assessment Study
IRP	Installation Restoration Program
MIP	membrane interface probe
MNA	monitored natural attenuation
msl	mean sea level
NAPL	non-aqueous phase liquid
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PAHs	polycyclic aromatic hydrocarbons
POL	petroleum, oil, and lubrication
PRAP	Proposed Remedial Action Plan
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RME	Reasonable Maximum Exposure
SARA	Superfund Amendments and Reauthorization Act of 1986
SMP	Site Management Plan
SWMU	Solid Waste Management Unit
TPH	total petroleum hydrocarbons
TRC	Technical Review Committee
USEPA	U.S. Environmental Protection Agency
UST	Underground Storage Tank
VDEQ	Virginia Department of Environmental Quality

SECTION 1

The Declaration

1.1 Site Name and Location

Solid Waste Management Unit (SWMU) 25
Naval Air Station (NAS) Oceana
Virginia Beach, Virginia

1.2 Statement of Basis and Purpose

This decision document (DD) presents the determination that no action remedial alternative is protective of human health and the environment at SWMU 25, located at NAS Oceana, Virginia Beach, Virginia. This determination was made in accordance with Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record file for this site.

The Virginia Department of Environmental Quality (VDEQ) and the U.S. Environmental Protection Agency (EPA) concur with the selected remedy.

1.3 Description of the Selected Remedy

Previous investigations of SWMU 25 have determined that this site poses no unacceptable human health or ecological risk. Therefore, no CERCLA remedial action is necessary to protect public health or the environment.

1.4 Statutory Determination

The no CERCLA remedial action decision for NAS Oceana SWMU 25 is protective of human health and the environment. The contamination levels at SWMU 25 allow for unlimited site use and unrestricted exposure; therefore, a 5-year review will not be required. In the event that contamination posing an unacceptable risk to human health or the environment is discovered after execution of this decision document, the Navy will undertake additional investigation or study to characterize the contamination and associated risk and will take appropriate action under CERCLA, if deemed necessary.

F. F. Aucremanne

F. F. AUCREMANNE, CAPT, CEC, U. S. NAVY, REGIONAL ENGINEER
By Direction of the Commander, Navy Region, Mid-Atlantic

10/13/03
Date

SECTION 2

Decision Summary

This DD is issued to describe the Department of the Navy's (Navy's) selected remedial action for SWMU 25 at NAS Oceana, Virginia Beach, Virginia (Figure 1). The EPA and VDEQ concur with the selected remedy. The Navy is the lead agency and provides funding for site cleanups. SWMU 25 (Figure 2) is among several Installation Restoration Program (IRP) sites located at the NAS Oceana facility.

2.1 Site Name, Location, and Description

The site name is NAS Oceana, located in Virginia Beach, Virginia. NAS Oceana was established in 1940 as a small, auxiliary airfield and has grown more than 16 times its original size to a 6,000-acre master jet base supporting a community of more than 9,100 Navy personnel and 11,000 dependents. NAS Oceana's primary mission is to provide the personnel, operations, maintenance, and training facilities to ensure the deployment readiness of fighter and attack squadrons on aircraft carriers of the U.S. Atlantic Fleet.

2.2 Site History and Enforcement Activities

2.2.1 History of Site Activities

SWMU 25 is located in the Type II Clear Zone and approximately 2,400 ft north of NAS Oceana Airfield Runway 14/32. The SWMU consists of an area known as the "western pond," a former borrow pit subsequently used as a concrete disposal area. The general area is bounded on the south by the Norfolk and Southern Railroad and land that has been historically farmed; on the west and east by undeveloped land; and on the north by Interstate Highway 264 (formerly Virginia Highway 44). A semipaved access road crosses the railroad and connects the SWMU to Potters Road. The area south of the railroad consists of fields owned by the Navy but leased to a local farmer (Figure 3).

During the construction of Highway 44 in the 1970s, the SWMU 25 area was used for sand borrow pits and as a disposal area. Over the years, the two borrow pits in this area filled with water, eventually forming ponds. There is no surface water flow between the two ponds. A ditch leads into the eastern side of the western pond.

In 1979, the Navy purchased the land and began using the area near the western pond as a concrete disposal area (e.g., concrete from refurbishing NAS runways). The Navy ceased disposal activities before 1990 and has not used the area since. The Navy has restricted public access as well.

The concrete disposal activities occurred in the southeast corner of the western pond. Approximately 60 percent of the concrete was placed in the pond and the remaining 40 percent forms a debris pile rising 8–16 ft above ground level. The disposal area is roughly circular, with a diameter of about 360 feet.

Navy regulations indicate that runway clear zones shall be graded and cleared of all above-ground objects except airfield lighting. The Navy has proposed to remove and recycle the concrete. The concrete removal will extend to the ground surface adjacent to the pond and to approximately 3 ft below the water surface in the pond, even though the concrete is known to extend several additional feet to the bottom of the pond. Following the concrete recycling project, the area will be restored to a natural uplands habitat.

2.2.2 Previous Investigations

Multiple studies within the Resource Conservation and Recovery Act (RCRA) corrective action process and studies under the IRP prior to the RCRA corrective action have been conducted at NAS Oceana. The studies for SWMU 25 are summarized below.

- *RCRA Facility Assessment (RFA), NAS Oceana, Virginia Beach, Virginia,* 1983.

  SWMU 25 was identified in the RFA due to the presence of concrete rubble and the apparent residential dumping of old refrigerators and other appliances.

- *RCRA Facility Investigation – Phase I, NAS Oceana, Virginia Beach, Virginia,* Final Report, 1993.

  Seventeen SWMUs, including SWMU 25, were investigated during the Phase I RCRA Facility Investigation (RFI). As a result of this investigation, SWMUs were reclassified into four categories: (1) SWMUs that could advance to a Corrective Measures Study (CMS); (2) SWMUs that require additional characterization under a second phase of the RFI; (3) SWMUs where contamination, specifically of soil, could be remediated immediately on the basis of the existing data; and (4) SWMUs that require no additional study or remediation. The SWMUs were divided into separate study tracks based on these recommendations. SWMU 25 was classified as requiring additional characterization under a second phase of the RFI.

- *Phase II RFI, NAS Oceana, Virginia Beach, Virginia,* Draft Final Document, 1995.

  The Phase II RFI was written as an addendum to the Phase I report and focused on five SWMUs (2D, 2E, 15, 24, and 25). These SWMUs, with the exception of SWMU 24, were classified in the Phase I RFI as SWMUs that require additional characterization under a second phase of the RFI. The purpose of the Phase II RFI was to characterize the contamination at the five sites in enough detail that a sound determination of future action could be made.

- *Phase III RFI, NAS Oceana, Virginia Beach, Virginia,* Final Document, June 1999.

  Data gaps identified in the Phase I and II RFIs were used to scope the fieldwork for the Phase III RFI. The initial Phase III RFI field investigation focused on nine SWMUs (1, 2B, 2C, 2D, 18, 21, 24, 25, and 26) and was completed in December 1997. A draft-final report was submitted to the EPA for review and comment in July 1998. Due to regulatory comments on the draft-final report, additional fieldwork was required.

- *Ecological Risk Assessment (ERA), SWMU 25, Naval Air Station Oceana, Virginia, Beach, Virginia,* Final Document, May 2003.

The Navy prepared a screening ERA for SWMU 25 utilizing data from the RFI investigations.

Previous investigation reports are included in the Administrative Record for this site.

2.2.3 Enforcement Actions

The investigation/remediation is a joint effort of the Navy, EPA, VDEQ, and the NAS Oceana. Previous SWMU investigations have been conducted under the provisions of the RCRA corrective action program. As of July 1998, cleanup activities were being conducted under the provisions of CERCLA, within the framework of new administrative procedures. Under these procedures, the Navy and EPA will reach concurrence on the classification of each SWMU in lieu of scoring each for the National Priorities List (NPL).

A total of 60 SWMUs were recommended for study in the RCRA Consent Order issued by the EPA. After reviewing the Interim RFI results, the Navy and EPA determined that only 19 SWMUs required investigation under the RCRA Consent Order; the remaining SWMUs are regulated under other federal and/or state programs. Following the issuance of the RCRA Consent Order, the Navy combined four of the identified SWMUs into two, due to their relative proximity and similar site operations. Therefore, the final count of sites previously investigated by the Navy is 17 SWMUs.

2.3 Community Participation

In accordance with Sections 113 and 117 of CERCLA, the Navy provided a public comment period from August 24, 2003 through September 22, 2003 for the proposed remedial action.

The Proposed Remedial Action Plan (PRAP) was available to the public in the Administrative Record and in an information repository maintained at the Virginia Beach Public Library, 4100 Virginia Beach Boulevard, Virginia Beach, Virginia. Public notice was provided in *The Virginia Pilot* on August 24, 2003 and a Public Meeting was held in the NAS Oceana Officers Club, NAS Oceana, Virginia Beach, Virginia on September 10, 2003.

The Navy and NAS Oceana have had a comprehensive public involvement program for several years. Starting in January 1989, a Technical Review Committee (TRC) met on average twice yearly to discuss issues related to investigative activities at NAS Oceana. The TRC included mostly of government personnel; however, a few private citizens attended these meetings.

In November 1994, the Navy converted the TRC into a Restoration Advisory Board (RAB), which is co-chaired by a community member and holds meetings on an as needed, or as requested, basis. Previous investigations of SWMU 25 were discussed at the RAB meetings.

Community participation activities for the final selected remedy include:

- The documents concerning the investigation and analysis at SWMU 25, are located in the Administrative Record at the Virginia Beach Public Library, 4100 Virginia Beach Boulevard, Virginia Beach, VA.
- A newspaper announcement on the availability of the documents and the public comment period/meeting date was placed in *The Virginia Pilot* on August 24, 2003.

- A 30-day public comment period established by the Navy to review the PRAP began August 24, 2003 and concluded September 22, 2003.
- A Public Meeting was held September 10, 2003 to answer any questions concerning the PRAP. The Public Meeting transcript is included in the Responsiveness Summary, which is part of this Decision Document.

2.4 Scope and Role of Response Actions

The Navy acts in partnership with the USEPA and the Commonwealth of Virginia to conduct environmental investigations at NAS Oceana through the facility's IRP. A list of all IRP sites can be found in the current Site Management Plan (SMP), which is located in the Administrative Record. The SMP contains the location, description, contaminants of concern, and cleanup status of each site. Subsequent to the SMP, additional information pertaining to site status may be found in the two NAS Oceana Decisions Documents issued in 2001; these documents are also located in the Administrative Record.

2.5 Site Characteristics

2.5.1 Overview

2.5.1.1 Site Topography

The elevation of NAS Oceana ranges from approximately five ft above mean sea level (msl) in the drainage ditches to approximately 25 ft above msl in the open fields. Elevations in the developed area of the station range from 10 to 25 ft above msl. The topography is generally flat with a gradual easterly slope.

2.5.1.2 Surface Water Hydrology

Surface runoff from the station is facilitated by a system of drainage ditches and surface canals that flow southwest to West Neck Creek, north to London Bridge and Great Neck Creek, and east to Owls Creek and Lake Rudee. Early field investigations noted the presence of iron precipitate, organic odors, high turbidity, and thick brown-algae mats in many ditches.

2.5.1.3 Geology/Hydrogeology

NAS Oceana is on the outer edge of the Atlantic Coastal Plain physiographic province. The geologic units of concern in the environmental investigations at NAS Oceana are in the Chesapeake Group (only the youngest unit, the Yorktown Formation) and the Columbia Group.

Groundwater at NAS Oceana is generally within 4 to 10 ft of the ground surface. Aquifer conditions are unconfined in the Columbia Group and unconfined to semi-confined within the upper Yorktown Formation. When the clay-confining unit overlying the Yorktown is absent, the upper Yorktown is generally unconfined. Natural groundwater flow directions are generally south to southeast, but flow direction is controlled locally in the Columbia Group by drainage ditches. The flow direction in the Virginia Beach area is, therefore, highly variable because of the complexity of the drainage patterns.

2.5.2 SWMU 25—Specific Site Characteristics

SWMU 25 consists of an area known as the "western pond," which was a former borrow pit subsequently used as a concrete disposal area. The western pond covers approximately 6 acres and is approximately 25 to 30 ft deep. The pond is roughly circular with a diameter of about 360 ft and has no outlet. The pond is primarily surrounded by grass. A variety of birds and fish have been observed around and in the pond.

2.5.3 Nature and Extent of Contamination

The previous investigations performed at SWMU 25, discussed in Section 2.2.2, sought to define the extent of the contamination at the site. These investigations focused on the sediments of the pond adjacent to SWMU 25. Initially pesticides (4,4'-DDE and 4,4'-DDT) and inorganics (zinc, copper, arsenic, and nickel) were found to exceed federal guidelines or risk-based screening criteria. Further investigation to verify the initial results and fill identified sampling data gaps could not duplicate the inorganic sampling results, and determined that the agriculture field next to the site is likely the source of the pesticides detected in the investigations, not the inert landfill (SWMU 25).

2.6 Current and Potential Future Site and Resource Uses

NAS Oceana consists of approximately 6,000 acres within the City of Virginia Beach. NAS Oceana is located in the Tidewater region of Virginia and lies southeast of the City of Norfolk, immediately west of the Atlantic Ocean, and just south of the Chesapeake Bay.

More than 40 percent of the base is urbanized, including commercial, residential, and operations buildings as well as runways, hangars, and similar structures. The undeveloped areas consist of farmland, open land, forest, and wetlands. Farmland, which comprises approximately 925 acres, is farmed privately under the Navy's agricultural outlease program. Major crops grown within the boundaries of the base are corn, soybeans, and winter wheat. Approximately 200 acres of open fields and meadows and 600 acres of forest exist on NAS Oceana. The forested areas are dominated by pine, mixed pine-hardwood, and hardwood stands.

Wetlands comprise approximately 660 acres of the undeveloped areas. The U.S. Fish and Wildlife Service's (USFWS's) National Wetland Inventory (NWI) maps classify wetlands as palustrine emergent, palustrine scrub/shrub, and palustrine forested. However, onsite observations by a CH2M HILL ecologist during a 1992 site visit suggest that the NWI maps may underestimate the amount of forested wetlands.

The current SWMU 25 land use is classified as "Water Areas," as documented in the base-wide planning document, *Master Plan, Master Jet Base, Naval Air Station Oceana, Virginia Beach, Virginia (LANTDIV, December 1986)*. The concrete at the SWMU is scheduled to be removed and recycled by a contractor. Since SWMU 25 is within the designated clear zone for Runway 14/32, the concrete recycling project's primary purpose is to bring the area into compliance with the airfield safety criteria for a Type II Clear Zone.

Navy regulations indicate that runway clear zones shall be graded and cleared of all above-ground objects except airfield lighting. The concrete removal will extend to the ground

surface adjacent to the pond and to approximately 3 ft below the water surface in the pond, even though the concrete is known to extend several additional feet to the bottom of the pond. Following the concrete recycling project, the area will be restored to a natural uplands habitat.

Subsequent to the concrete recycling project, SWMU 25 will remain inactive and undeveloped, as the Navy has no future plans for the site.

Neither the shallow or deep groundwater beneath SWMU 25 is currently used as a potable water supply. There are seven wells on the base that extract groundwater from the subsurface, two of which extract groundwater from the Columbia Aquifer. The others extract water from the underlying Yorktown Aquifer. Of the two wells in the Columbia Aquifer, one supplies water to a maintenance sink and the other supplies a guardhouse bathroom. Both are posted as "Not for drinking water."

2.7 Summary of Site Risks

This section presents a brief summary of the relevant portions of the human health and ecological risk assessments for SWMU 25. These assessments provide the basis for the necessary action for the SWMU.

An evaluation of risk to human health was conducted as part of the Phase III RFI. The SWMU as a whole also was evaluated for ecological risk. Results are summarized below.

2.7.1 Human Health Risk Assessment

The Navy compared detected concentrations in sediments to EPA Region III RBCs for industrial and residential soil scenarios. The comparison revealed no exceedances of the RBCs in any of the sediment samples collected at SWMU 25 during any of the RFI investigations (Phase I, Phase II, and Phase III). Therefore, exposure to the sediments at SWMU 25 poses no unacceptable risk to human health.

The concentrations detected in the Oceana SWMU 25 surface water data collected in February 1993 were compared to ten times the USEPA Region III RBCs for tap water. Prior to multiplying the tap water RBCs by ten, the noncarcinogenic RBCs were divided by ten to account for exposure to multiple noncarcinogenic constituents. Arsenic was the only constituent that was detected at a concentration that exceeded ten times the tap water RBC and is the only constituent of potential concern. However, the detected concentrations of arsenic would not result in unacceptable carcinogenic risks or noncarcinogenic hazards to potential receptors (recreational adults and children who incidentally ingest the surface water and have dermal contact with the surface water) for the surface water. Use of ten times the tap water RBC as a screening for the surface water is extremely conservative, and actual exposures would be much less than those used to compute the RBCs.

2.7.2 Ecological Risk Assessment

An ERA was conducted in order to evaluate risk to ecological receptors at SWMU 25. Analytical sediment and surface-water data collected during the Phase I, II, and III RFIs were compared to the Biological Technical Advisory Group's (BTAG's) screening values for flora and fauna. Screening level food chain models for bioaccumulative chemicals for

aquatic receptors were developed, and a list of chemicals of potential concern (COPCs) was determined based upon hazard quotients (HQs) equal to or greater than 1.

The ERA concluded that no analytes exceeded screening values based upon maximum concentrations in surface water for either worms in sediment or plants. Four metals and two pesticides exceeded BTAG screening values for flora and fauna based upon maximum concentrations in sediments; these exceedances where primarily in one sediment sample location. The migration of chemicals from this sample location to the rest of the pond will not occur, because of the low chemical concentrations in the sediment sample. Although this sediment sample location presents an isolated area in the pond adjacent to SWMU 25 where potential risk to ecological receptors may exist, the contamination is limited. The remaining pond data confirmed that the contamination is limited to this isolated area, therefore no action is recommended at SWMU 25.

2.7.3 Conclusions and Recommendations

The assessment of risk information related to both human health and the environment is detailed in the preceding sections for SWMU 25,which provide the investigation summary information and rationale to determine that SWMU 25 poses no unacceptable risk to human health or the environment. Therefore, no action is necessary at SWMU 25.

2.8 Selected Remedy

Previous investigations of SWMU 25 have determined that this site poses no unacceptable human health or ecological risk. Therefore, the Navy has determined that no CERCLA remedial action is necessary to protect public health or the environment and has selected the no action remedial alternative for SWMU 25. The EPA and VDEQ concur with the selected remedy.

2.9 Documentation of Significant Changes

The PRAP for NAS Oceana SWMU 25 was released for public comment on August 24, 2004. The PRAP identified the No Action alternative as the Preferred Alternative. No comments were received from the public during the public comment period. It was determined that no significant changes were necessary or appropriate to the remedy originally identified in the Proposal Plan.

SECTION 3

Responsiveness Summary

As required by CERCLA §117 and NCP §§300.430(f)(3)(i)(F) and 300.430(f)(5)(iii)(B), a public comment period, from August 24, 2003 to September 22, 2003, was conducted and a public meeting was held on September 10, 2003 to present the PRAP and answer any questions on the PRAP or any of the other documents in the information repository. The only participants in the Public Meeting were representatives of the Navy, USEPA, and the Commonwealth of Virginia; no members of the general public attended this meeting. A copy of the meeting attendees and transcript is included in Appendix A.

Figures

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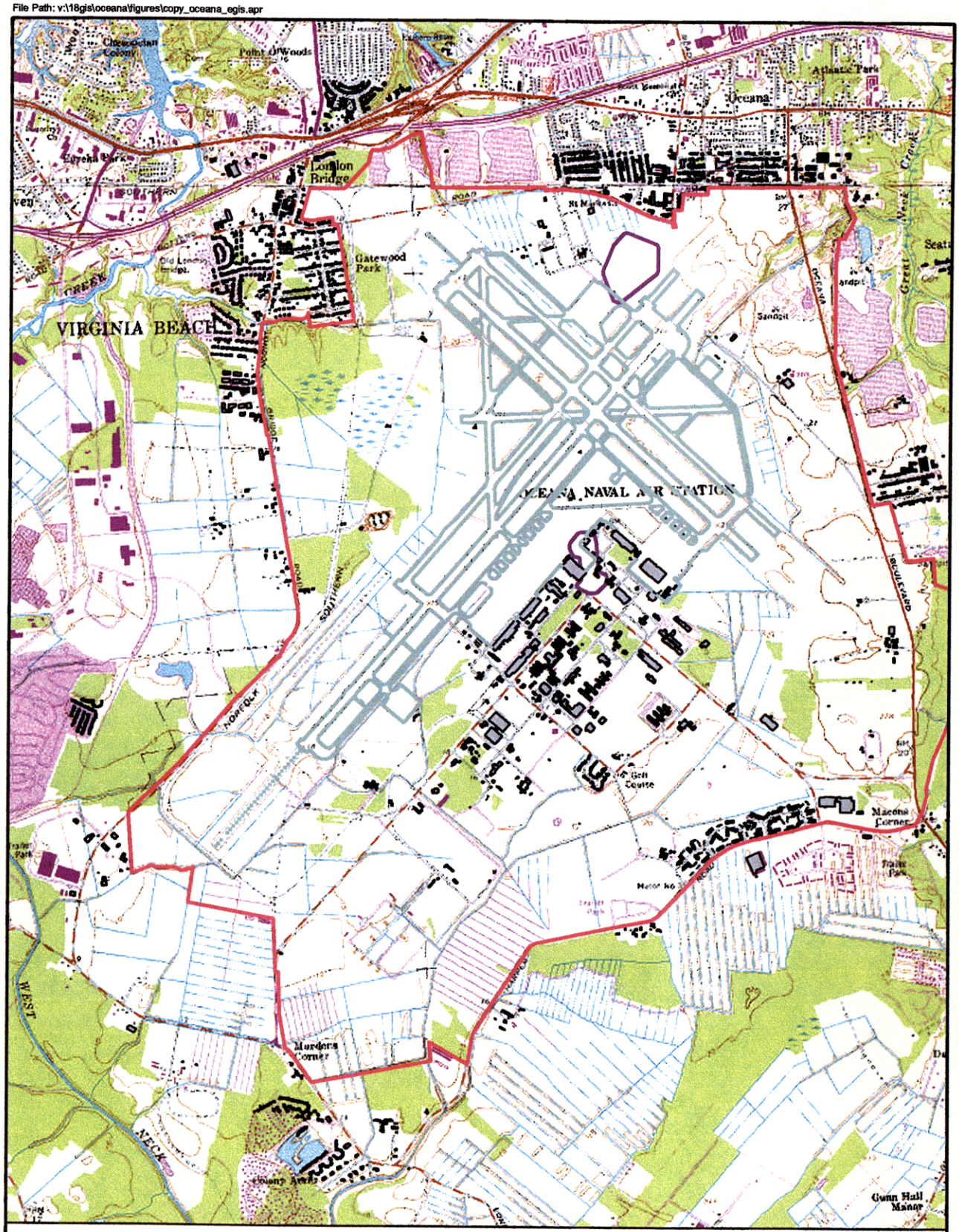

LEGEND

- NAS Oceana Boundary Line
- Buildings

N

0 2000 4000 Feet

Figure 1
Base Map
NAS Oceana
Virginia Beach, Virginia

CH2MHILL

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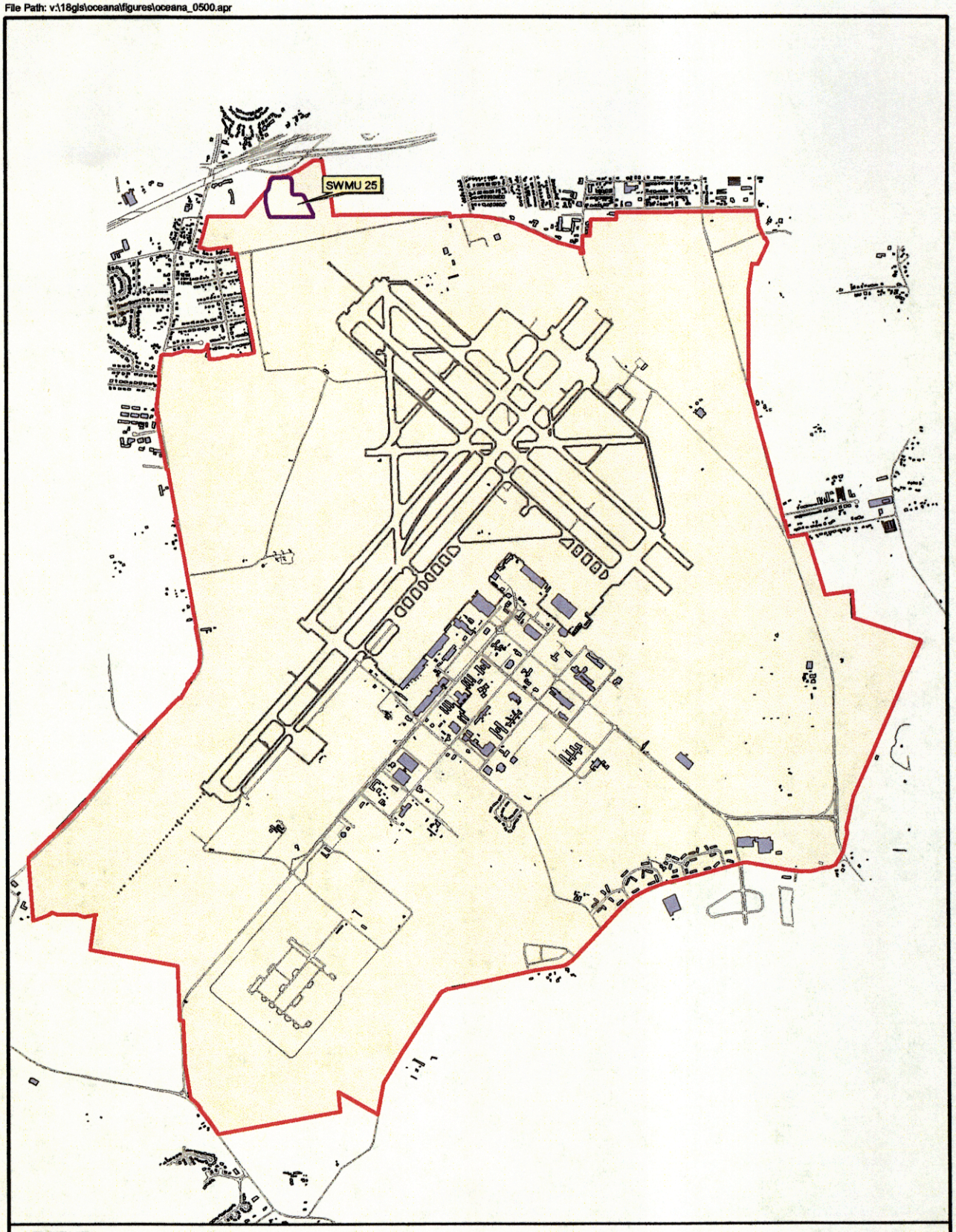

Figure 2
SWMU Location Map
NAS Oceana, Virginia Beach, Virginia

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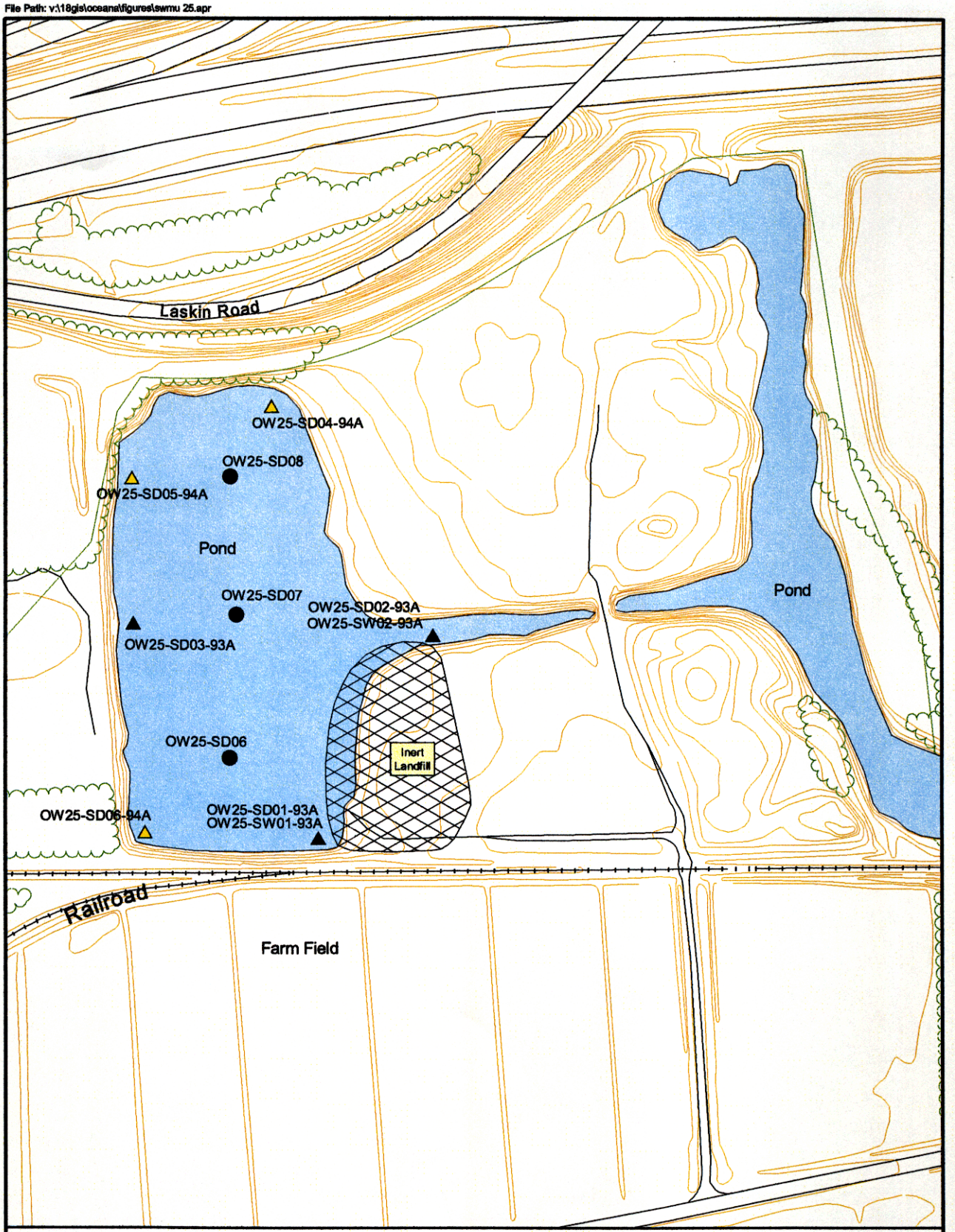

LEGEND

- Phase III Sediment Sampling Location
- Phase I Sampling Location
- Phase II Sediment Sampling Location
- Approximate Landfill Boundary

N

0 100 200 300 Feet

Figure 3
SWMU 25 Sample Locations
NAS Oceana
Virginia Beach, Virginia

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Appendix A
Transcript of Public Meeting

NAVAL AIR STATION OCEANA
PUBLIC MEETING
PROPOSED PLAN DOCUMENTS
SOLID WASTE MANAGEMENT UNITS (SWMUs) 15 and 25

Meeting Date: 10 September 2003
Meeting Location: Officer's Club, NAS Oceana
Meeting Time: 19:00 – 20:00

Navy/Regulatory Agency Meeting Attendees:

Name	Affiliation
Tim Reisch	Naval Facilities Engineering Command (LANTDIV)
Valerie Walker	Commander Navy Region Mid-Atlantic (CNRMA)
Greyson Franklin	United States Environmental Protection Agency (USEPA) Region III
Steve Mihalko	Virginia Department of Environmental Quality (VDEQ)
Paul Landin	CH2M Hill (Navy environmental contractor)

Attendees from the public:

None

Meeting Proceedings:

Presentation (attached) was available for discussion.

U.S. NAVY

Naval Air Station, Oceana

Proposed Remedial Action Plan (PRAP)

SWMUs 15 and 25

September 10, 2003

Site Description

- SWMU 15
  - Located in the former North Station area, about 800 feet northwest of Runway 23R and 1,000 feet northeast of the area used to store recreation vehicles near the old Civilian Personnel Office officers' club.
  - The SWMU 15 area includes an abandoned tank farm that served as the primary source of aircraft fuel for the North Station area when it was active from the mid-1950s to the mid-1970s.

Site Description

- SWMU 25
  - SWMU 25 is located in the Type II Clear Zone and approximately 2,400 ft north of NAS Oceana Airfield Runway 14/32. The SWMU consists of an area known as the "western pond," a former borrow pit subsequently used as a concrete disposal area.
  - During the construction of Highway 44 in the 1970s, the SWMU 25 area was used for sand borrow pits and as a disposal area. Over the years, the two borrow pits in this area filled with water, eventually forming ponds.
  - In 1979, the Navy purchased the land and began using the area near the western pond as a concrete disposal area (e.g., concrete from refurbishing NAS runways). The Navy ceased disposal activities before 1990 and has not used the area since.

History of Investigations at SMWU 15

- 1982 Sampling Investigation
- Initial Assessment Study (1984)
- RCRA Facility Assessment (1988)
- Phase I (1993) and II (1995) RCRA Facility Investigation
- Corrective Measures Study (1995)
- Monitored Natural Attenuation Study (1999/2000)
- Ecological Risk Assessment (2001)

History of Investigations at SMWU 25

- RCRA Facility Assessment (1983)
- Phase I RCRA Facility Investigation (1993)
- Phase II RCRA Facility Investigation (1995)
- Phase III RCRA Facility Investigation (1999)
- Ecological Risk Assessment (2003)

Summary of Findings SWMU 15

- Results of investigations conducted at SWMU 15 indicated the following:
  - Surface soils contained elevated levels of TPH and PAHs
  - Subsurface soils contained elevated concentrations BTEX, TPH, and PAHs.
  - Groundwater contained free-phase petroleum and elevated concentrations of BTEX, TPH, and PAHs. Chlorinated compounds (the CERCLA release), vinyl chloride and isomers of 1,2-dichloroethylene, were also detected at low concentrations in a few monitoring wells.

Soil Removal Action SWMU 15

- Based on recommendations from the CMS, a soil removal action was conducted at SWMU 15 in 1997 to remediate the BTEX contamination in the soil.
- An area measuring about 150 feet by 125 feet was excavated to the water table, creating a small pond. Approximately 18,000 cubic yards of soil were treated onsite by bioremediation and aeration.
- Confirmatory soil samples were collected to ensure cleanup criteria had been achieved.
- Additional soil samples were collected from the biopile to perform a Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA).

Soil Removal Action SWMU 15 (cont'd)

- Results of the HHRA were within the USEPA's target risk levels based on residential and recreational exposure scenarios.
- Results ERA concluded that slightly elevated levels of PAHs were not considered to be a concern in the biopile soils when compared to background sample concentrations.
- The treated soils were distributed as topsoil for a runway restoration project.

SWMU 15 Proposed Remedial Action Plan: Transfer of Regulatory Oversight

- The HHRA indicated that groundwater in SWMU 15 poses a risk due to the presence of inorganic and fuel related products, not chlorinated solvents (the CERCLA release).
- POL compounds and other constituents related to these exempted POL constituents are specifically excluded from CERCLA actions.
- Therefore, the risk posed from these compounds should not be included in assessing the risk under CERCLA.
- Remaining fuel related compounds in SMWU 15 groundwater will be addressed under the Virginia Underground Storage Tank/Petroleum, Oil, and Lubrication (UST/POL) Program.
- No further action necessary under CERCLA.

SWMU 25 Summary of Site Risks

- **Samples of surface water and sediment were collected during the Phase I, II, and II RFI investigations**
  - The Navy compared detected concentrations in sediments to EPA Region III RBCs for industrial and residential soil scenarios.
    - Therefore, exposure to the sediments at SWMU 25 poses no unacceptable risk to human health.

SWMU 25
Summary of Site Risks (cont'd)

- The concentrations detected in the Oceana SWMU 25 surface water data collected in February 1993 were compared to ten times the USEPA Region III RBCs for tap water.
  - Arsenic was the only constituent that was detected at a concentration that exceeded ten times the tap water RBC and is the only constituent of potential concern.
  - However, the detected concentrations of arsenic would not result in unacceptable carcinogenic risks or noncarcinogenic hazards to potential incidental receptors of the surface water.
  - Use of ten times the tap water RBC as a screening for the surface water is extremely conservative, and actual exposures would be much less than those used to compute the RBCs.

SWMU 25
Summary of Site Risks (cont'd)

- An ERA was conducted in order to evaluate risk to ecological receptors at SWMU 25
  - The ERA concluded that no analytes exceeded screening values based upon maximum concentrations in surface water.
  - Four metals and two pesticides exceeded BTAG screening values for flora and fauna based upon maximum concentrations in sediments; these exceedances where primarily in one sediment sample location.
    - Although this sediment sample location presents an isolated area in the pond adjacent to SWMU 25 where potential risk to ecological receptors may exist, the contamination is limited. The remaining pond data confirmed that the contamination is limited to this isolated area.

SWMU 25 Proposed Remedial Action Plan: No Further Action

- The assessment of risk information related to both human health and the environment for SWMU 25 provide the investigation summary information and rationale to determine that SWMU 25 poses no unacceptable risk to human health or the environment.
- Therefore, no action is necessary at SWMU 25.